Occult Renal Cell Carcinoma Manifesting as Nasal Mass and Epistaxis

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Metastasis of renal cell carcinoma (RCC) to the nasal cavity and paranasal sinuses is rare, with fewer than 50 cases described in the literature. Nasal metastasis as the initial presentation of RCC is even rarer. Metastases to the nasal cavity usually represent advanced disease with poor outcome. The authors report a case of metastatic RCC presenting with right nasal cavity mass and epistaxis, followed by a brief review of the relevant literature.

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KEY WORDS

Renal cell carcinoma • Nasal metastasis • Epistaxis

Renal cell carcinoma (RCC) accounts for approximately 85% of primary renal tumors, and represents approximately 3% of all adult malignancies.[1] Usual sites of metastasis include lungs (75%), regional lymph nodes (65%), bone (40%), liver (40%), and brain (5%).[2] Metastasis to the nasal cavity is an extremely rare occurrence, with fewer than 50 cases reported,[3,4] although RCC is the most common infraclavicular primary tumor that metastasizes to the nasal cavity and paranasal sinuses.[5] We describe a case of occult clear-cell RCC that presented with epistaxis due to nasal cavity metastasis.

Case Report

A 48-year-old man presented with a 6-week history of recurrent progressive right-sided nasal bleeding. He also reported swelling of the right eye associated with double vision for the previous month. Medical history and general examination were insignificant

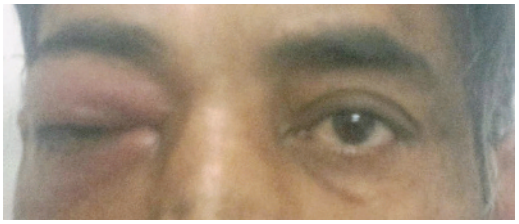

Figure 1. Photograph of the patient who presented with epistaxis, showing right proptosis and edema of right eyelids.

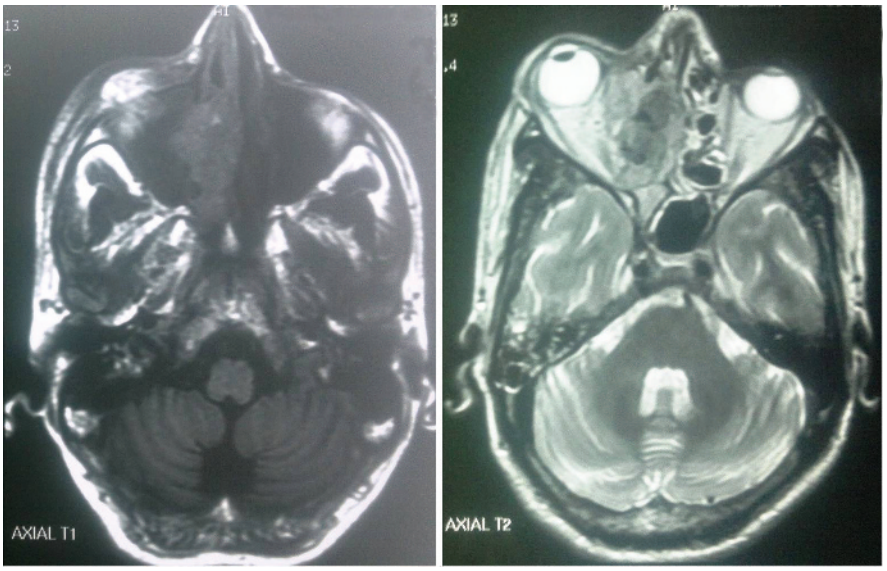

Figure 2. Magnetic resonance imaging showing an expanding mass (3.6 × 1.7 × 2.7 cm) present in the right nasal cavity and compressing the medial walls of the right maxillary sinus and right orbit.

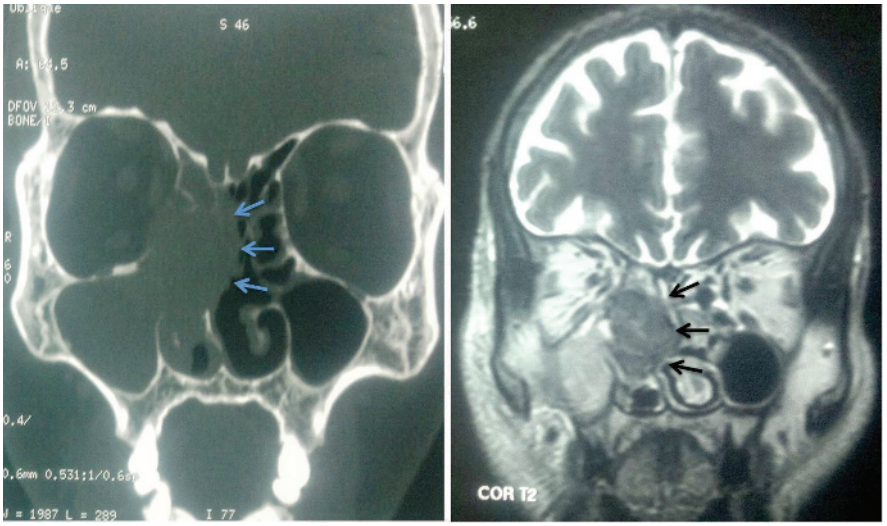

Figure 3. Coronal section magnetic resonance imaging showing the mass invading into the medial posterosuperior quadrant of the right orbit leading to proptosis.

except for right proptosis and edema of right eyelids (Figure 1). Laboratory tests showed hemoglobin level of 9 mg/dL. Liver function, coagulation profile, serum calcium level, and other routine blood test results were all normal. Nasal endoscopy was performed, and a highly vascular mass arising from the right nasal cavity was noted. Magnetic resonance imaging (MRI) was performed, which revealed an expanding mass (3.6 × 1.7 × 2.7 cm) in the right nasal cavity compressing the medial walls of the right maxillary sinus and right orbit (Figure 2). The mass was also invading the medial posterosuperior quadrant of right orbit, leading to proptosis (Figure 3). Biopsy of the nasal mass was taken under general anesthesia, and revealed clear cell adenocarcinoma of primary sinonasal or renal origin.

Workup was initiated to screen the abdominal organs. Ultrasonography (USG) of the abdomen found a solid mass at the upper pole of the right kidney. On computed tomography (CT) scan, it was an ill-defined, heterogeneous upper polar renal mass that measured 10 × 8 × 7 cm (Figure 4). The patient was counseled for cytoreductive nephrectomy for primary tumor and endoscopic nasal surgery for nasal metastasis. However, he did not consent to surgical intervention. Therefore, angio-embolization of the feeding artery of the tumor with a coil was performed. The size of the nasal mass was somewhat reduced, thus providing the patient some symptomatic relief. Targeted therapy with sunitinib was instituted. The patient remained asymptomatic for the next 3 months. He was lost to further follow-up.

Discussion

Classical presentation of RCC with flank pain, palpable mass, and gross hematuria is seen in only 10% of patients,[6] whereas one-third of newly diagnosed patients with RCC have a distant metastasis as the initial presentation.[1,7] Common sites of distant metastases are lungs, liver, brain, and bones.[3] In the head and neck region, thyroid gland and brain are the usual locations, and the nasal cavity and paranasal sinuses are rarely involved. Nasal metastasis as the initial manifestation of

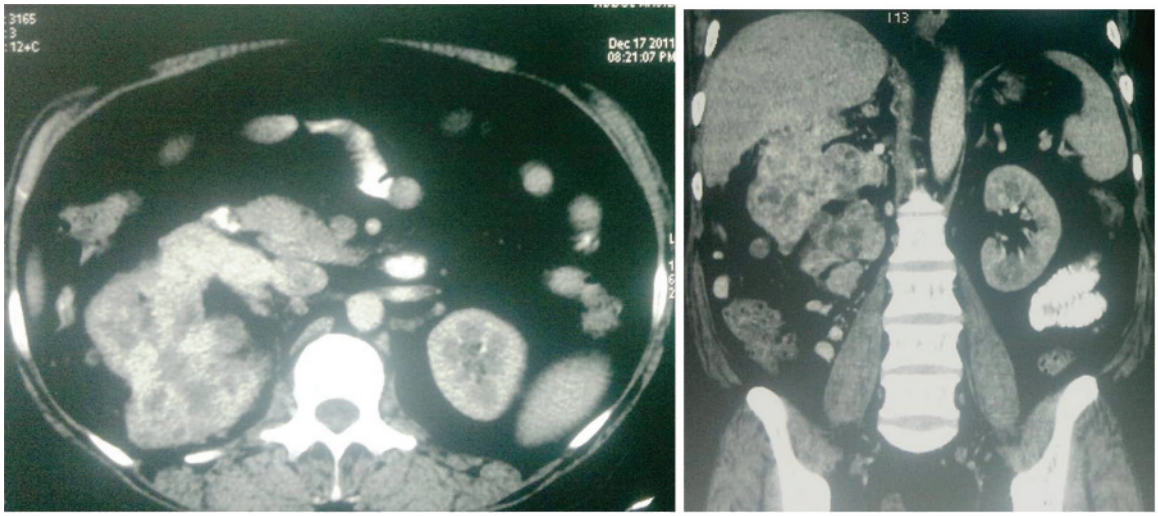

Figure 4. Computed tomography scan of the abdomen of the same patient showed an ill-defined, heterogeneous upper polar renal mass (10 × 8 × 7 cm).

occult RCC is even rarer.[8] Choong and colleagues[9] analyzed the 301 cases of metastatic RCC treated over a period of 20 years and found only 4 cases of nasal metastases (1.3% of those with metastasis). In two of these four cases, nasal lesion was the first presenting feature of RCC. In another large series of 1785 patients of surgically treated RCC, incidence of atypical metastases was 1.88% (37 cases). Among these 37, only 3 patients had metastases to the nasopharynx region.[10] Among paranasal sinuses, the most commonly involved sinuses by metastatic tumors are the maxillary sinuses, followed by the ethmoid, frontal, and sphenoid. A case of isolated metastasis to the nasal septum has also been reported.[4] Furthermore, multiple nasal metastases are usual, and that single head and neck metastasis from RCC is an exceptional occurrence.[9]

Multiple nasal metastases are usual, and that single head and neck metastasis from renal cell carcinoma is an exceptional occurrence.

Sinonasal metastases from RCC occur essentially via hematogenous spread via one of two routes.[4,9] The first route follows the renal vein, inferior vena cava (IVC), heart, lungs, and maxillary artery. This appears to be the primary route, as simultaneous lung and/or brain metastases were also present in a majority of the reported cases of sinonasal metastasis of RCC.[4,8,9] The second and less commonly followed route is via Batson paravertebral plexus of avalvular veins, which surrounds the vertebrae and communicates with pelvic veins caudally, intercostal veins cranially, and IVC in the abdomen (through azygous veins). Through this route, the tumor cells may bypass the lungs.[11]

The common presentation of nasal metastasis from RCC is with nasal obstruction, swelling, and pain. Epistaxis also occurs because of the highly vascular nature of RCC and its metastases.[4] Double vision, such as in this case, can result from proptosis.

Nasal lesions that cause epistaxis include angiofibromas, hemangiopericytomas, hemangiomas, adenocarcinomas, melanomas, and metastatic tumors from the breast and lungs.[8] MRI shows the extent and nature of the lesion. Diagnostic confirmation is provided by histologic examination supported by immunohistochemical staining of the biopsy of the nasal lesion. Once the diagnosis of metastatic RCC is confirmed, the abdomen should be screened by USG and CT. If a renal lesion is found, other common sites of RCC metastases (lungs, brain, and bones) should be screened accordingly.[8]

Prognosis of metastatic RCC is poor and depends most on the stage, nuclear grade, and clinical risk status of the patient. Median survival is less than a year.[7] Metastatic RCC is resistant to chemotherapy and radiotherapy. Patients with resectable primary tumor and a single metastasis may benefit from nephrectomy and metastasectomy. In postnephrectomy patients with metachronous metastasis, metastasectomy may provide some benefit. In cases of resectable primary tumor with multiple metastases, cytoreductive nephrectomy followed by systematic immunotherapy or targeted therapy is a better option.[5] For metastatic deposits in the sinonasal region in particular, radiotherapy along surgical resection (metastasectomy) has been used with variable response. It reduces the tumor burden and provides symptomatic relief. Sabo and colleagues[12] have even reported complete regression of nasopharyngeal metastasis of RCC with radiotherapy and

brachytherapy. A reasonable option is to employ radiotherapy followed by surgical resection of any residual metastatic lesion.[13] This strategy can also be helpful even if the primary tumor is unresectable.

Conclusions

RCC metastases to the nasal cavity are rare and usually associated with advanced disease and poor survival. Depending upon preference and performance status of the patient, radiotherapy and/or resection of nasal metastasis along with nephrectomy (if not previously done) is the treatment option. RCC metastases to the nasal cavity should be included in the differential diagnosis of nasal bleeding lesions. ■

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MAIN POINTS

- A 48-year-old man presented with a 6-week history of worsening right-sided nasal bleeding and swelling and double vision in the right eye.
- Endoscopic tests showed a highly vascular mass in the right nasal cavity, invading the right orbit. Subsequent biopsy and imaging studies reveal clear cell adenocarcinoma of sinonasal or renal origin, along with solid masses in the kidney.
- The patient refused surgical treatment and opted for angioembolization of the tumor, which reduced the nasal mass and its accompanying symptoms. Unfortunately, the patient did not return for follow-up.
- Prognosis for renal cell carcinoma (RCC) is poor. Depending upon preference and performance status of the patient, radiotherapy and/or resection of nasal metastasis along with nephrectomy (if not previously done) is the treatment option. RCC metastases to the nasal cavity should be included in the differential diagnosis of nasal bleeding lesions.